

REMARKS

Claims 1 – 13 are now pending in the application. Applicant respectfully requests the Examiner to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

The Examiner rejected claim 3 under 35 U.S.C. § 112, second paragraph, as lacking clear antecedent basis for the recitation of “those hot plugs flags.” Applicant submits that the immediately preceding recitation of “associated hot plug flag set” provided antecedent basis for the recitation of “those hot plug flags.” However, to further prosecution, applicant has changed the recitation of “those hot plug flags” to “each such set hot plug flag.” Applicant has made comparable amendments to claims 8 and 9 which had the same “those hot plugs flags” recitation. Applicant submits that amended claim 3 satisfies the requirements of being § 112, second paragraph.

REJECTION UNDER 35 U.S.C. § 102

The Examiner rejected claims 1 – 13 under 35 U.S.C. § 102(e) as being anticipated by Wallach et al. (U.S. 6,179,486). Applicant respectfully traverses this rejection.

The present invention is directed to computers having operating systems that utilize firmware to access base address registers (“BARs”). As noted in the application, all operating systems do not use firmware to write to BARs, with some operating systems directly accessing the BARs as opposed to using firmware to do so. [Application, par. 0007]

When a PCI slot fails, operating systems that utilize firmware to access BARs have had problem in determining which PCI slot failed because the PCI resource allocation map that is generated during boot-up may have been changed by the operating system, such as by

the operating system changing the BAR values or updating the PCI resource allocation map in the event of a PCI configuration space transaction or hot plug operation. While the firmware may have the initial information contained in the PCI resource allocation map, this information may be outdated as discussed and the firmware thus no longer has accurate information from which to determine the failed PCI slot.

The present invention solves this problem. It does so by maintaining a PCI resource allocation map in firmware. Each time the operating system executes firmware to perform PCI configuration space transactions or PCI hot plug operations, this firmware PCI resource allocation map is updated. When a PCI error occurs and a PCI host bridge logs the failing address, the firmware then uses this firmware maintained PCI resource allocation map to determine which PCI slot corresponds to the failure.

Claim 1 is directed to a method of identifying a failing PCI slot in a computer that accesses base address registers with firmware. It requires creating a firmware maintained PCI resource allocation map, updating the firmware maintained PCI resource allocation map upon the occurrence of at least of firmware being called to execute at least one of a hot plug operation and a PCI configuration space transaction, and upon the host bridge logging an error address due to a failing PCI slot, identifying the failing PCI slot from the information in the firmware maintained PCI resource allocation map. Contrary to the Examiner's position, Wallach et al. does not disclose a firmware maintained PCI resource allocation map. The Examiner cites to Wallach et al's configuration manager 500 as purportedly meeting the limitation of maintaining a firmware PCI resource allocation map. Assuming, arguendo, the Wallach et al's configuration manager 500 maintains a PCI resource allocation map, nothing in Wallach et al. discloses that it does so in firmware. The present invention solves a problem in computer systems having operating systems that use firmware to access base address registers and Wallach et al. does not even discuss the use of firmware to access base

address registers, let alone the aforementioned problem or the solution to this problem. Applicant submits that Wallach et al. fails to anticipate claim 1.

Independent claims 10 and 12 contain limitations comparable to those of claim 1 and is allowable over Wallach et al. at least for these reasons.

Claim 10 further requires identifying the failing PCI slot from an address associated with a base address register when the logged error address falls within a known address size range for the address associated with that base address register and identifying the failing PCI slot as unknown when the logged error address fall after a known address size range of an address associated with that base address register preceding the logged error address. Claims 5 – 7, which depend indirectly from claim 1, contain comparable limitations as does independent claim 12.

The Examiner, with reference to claims 5 -7, fails to cite any section of Wallach et al. as disclosing these limitations. The Examiner simply takes the position that “it is clear that when address bits of an adapter/slot do not fit in a 32 bit address space or 32 bit BAR, for example, then that failing slot cannot be identified.” Applicant finds no discussion in Wallach et al. that it identifies failing PCI slots in the manner required by these limitations of claims 7 – 10 and 10. Further, these limitations require that the failing PCI slot be identified as unknown when the logged error address fails after a known address size range and nothing in Wallach et al. discloses doing so. Applicant submits that claims 5 – 7, 10 and 12 are allowable over Wallach et al. also for these reasons.

Claims 1 – 9 depend directly or indirectly from claim 1 and are allowable for at least that reason.

Claim 11 depends from claim 10 and is allowable for at least that reason.

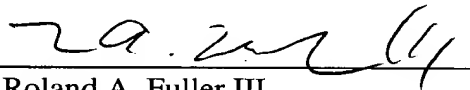
Claim 13 depends from claim 12 and is allowable for at least that reason.

CONCLUSION

Applicant submits that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. Applicant submits that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Oct. 8, 2004

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